Microbiology and Molecular Genetics—MMG

833 Microbial Genetics
Fall, 3(3-0) R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. SA: MPH 833
Gene structure and function. Genetic regulation at classical and molecular levels in prokaryotes and lower eukaryotes.

835 Eukaryotic Molecular Genetics
Spring, 3(3-0) Interdepartmental with Genetics. RB: (BMB 462 and ZOL 341) R: Open only to graduate students in the colleges of Agriculture and Natural Resources, Engineering, Human Medicine, Natural Science, Osteopathic Medicine, and Veterinary Medicine.
Gene structure and function in animals, plants, and fungi. Basic aspects of modern human genetics and the genetic basis for disease. Molecular genetic analyses. Eukaryotic modeling systems.

841 Soil Microbiology
Spring of even years. 3(3-0) Interdepartmental with Crop and Soil Sciences. RB: (MMG 425) SA: MPH 841
Ecology, physiology, and biochemistry of microorganisms indigenous to soil.

851 Immunology
Fall of odd years. 3(3-0) R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. SA: MPH 851
Functional aspects of immune responses; synthesis, structure, and function of effector molecules; cell-cell interactions; current advances and research techniques.

855 Molecular Evolution: Principles and Techniques
Fall of odd years. 3(3-0) Interdepartmental with Zoology; Plant Biology. Administered by Department of Zoology. RB: (ZOL 341 or ZOL 445)
Current techniques used to characterize and compare genes and genomes. Genetic variation, assays, variation, DNA analysis and computer use to conduct a phylogenetic analysis to compare organisms and infer relationships.

861 Advanced Microbial Pathogenesis
Fall of even years. 3(3-0) RB: (MMG 461 or MMG 409)
Molecular basis of microbial virulence, Virulence factors of microorganisms and the relationship of these factors to disease; host-pathogen interactions.

890 Special Problems in Microbiology
Fall, Spring, Summer. 1 to 4 credits. A student may earn a maximum of 8 credits in all enrollments for this course. R: Open only to graduate students in the Colleges of Human Medicine, Osteopathic Medicine, Veterinary Medicine, Natural Science, and Agriculture and Natural Resources. Approval of department. SA: MPH 890
Individualized laboratory or library research.

892 Seminar
Fall, Spring. 1(1-0) A student may earn a maximum of 6 credits in all enrollments for this course. R: Open only to graduate students in College of Agriculture and Natural Resources, College of Engineering, College of Human Medicine, College of Natural Science, College of Osteopathic Medicine, or College of Veterinary Medicine. SA: MPH 892
Student review and presentation of selected topics in microbiology and public health.

899 Master's Thesis Research
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 36 credits in all enrollments for this course. SA: MPH 999
Master's thesis research.

991 Topics in Microbiology
Fall, Spring. 1 to 3 credits. A student may earn a maximum of 6 credits in all enrollments for this course. SA: MPH 991
Topics are selected from traditional subdisciplines such as bacteriology, virology, cell biology, and immunology or from transecting subdisciplines such as microbial genetics, physiology, molecular biology and ecology.

999 Doctoral Dissertation Research
Fall, Spring, Summer. 1 to 12 credits. A student may earn a maximum of 90 credits in all enrollments for this course. R: Open only to graduate students in Microbiology and Molecular Genetics. SA: MPH 999
Doctoral dissertation research.

MILITARY SCIENCE MS

Department of Military Science
Office of the Provost

101A Leadership: The Military Profession
Fall, 1(1-1) SA: MS 101 Not open to students with credit in MS 101B.
Introduction to military leadership and fundamental concepts of leadership. Application of leadership doctrine. The role of the U.S. Army, Army Reserves, and National Guard. Leadership laboratory introduces basic military skills.

101B Leadership: The Military Profession
Spring, 1(1-2) SA: MS 101 Not open to students with credit in MS 101A.
Introduction to military leadership and fundamental concepts of leadership. Application of leadership doctrine. The role of the U.S. Army, Army Reserves, and National Guard. Leadership laboratory introduces basic military skills.

102A Leadership: Wilderness Survival
Fall, 1(1-1) SA: MS 102 Not open to students with credit in MS 102B.
Introduction to wilderness survival including the psychology of survival, survival planning, and survival kits; shelters; water procurement; fire craft; field expedient weapons, tools, and equipment; desert, tropical, and cold weather survival; basic survival medicine; and food procurement.

102B Leadership: Wilderness Survival
Spring, 1(1-2) SA: MS 102 Not open to students with credit in MS 102A.
Introduction to wilderness survival including the psychology of survival, survival planning, and survival kits; shelters; water procurement; fire craft; field expedient weapons, tools, and equipment; desert, tropical, and cold weather survival; basic survival medicine; and food procurement.

201A Leadership: The Military Leader
Fall, 1(1-1) SA: MS 201 Not open to students with credit in MS 201A.
Introduction to effective leadership. Communications. Value of the United States Army. Responsibilities of military officers and professionalism. Laboratory includes tactics, marksmanship training, and military skills.

201B Leadership: The Military Leader
Spring, 1(1-2) SA: MS 201 Not open to students with credit in MS 201A.
Introduction to effective leadership. Communications. Value of the United States Army. Responsibilities of military officers and professionalism. Laboratory includes tactics, marksmanship training, and military skills.

202A Introduction to Land Navigation and Tactics
Fall, 1(1-1) SA: MS 202 Not open to students with credit in MS 202B.
Introduction to land navigation using military maps and lensatic compass. Planning routes using azimuth and distance. Determining location by terrain association and other methods. Introduction to infantry defensive and reconnaissance operations.

202B Introduction to Land Navigation and Tactics
Fall, 1(1-2) Not open to students with credit in MS 202A.
Introduction to land navigation using military maps and lensatic compass. Planning routes using azimuth and distance. Determining location by terrain association and other methods. Introduction to infantry defensive and reconnaissance operations.

301 Leading Small Organizations
Fall, 3(3-2) RB: (MS 101A or MS 101B) and (MS 102A or concurrently or MS 102B or concurrently) and (MS 201A or concurrently or MS 201B or concurrently) and (MS 202A or concurrently or MS 202B or concurrently) Completion of basic camp or boot camp. Must meet U.S. Army contracting requirements.
Skills required for military officers: communication, team building, delegating tasks, supervision, ethics, and physical fitness. Leading small units. Participation in physical fitness is required.

302 Leadership: Small Unit Tactics
Spring, 3(3-2) RB: (MS 301)
Basic military tactics and the military communication/orders process focusing on small units. Application of lessons learned from leadership case studies to practical exercises of leadership. Delegation of tasks and supervision of subordinates in a stressful environment.
401   Leadership: Training Management, Counseling, and Unit Management
Fall. 3(3-2) RB: (MUS 302)
Army training philosophy. The lieutenant’s role in training management, personnel administration, and logistics. Practical exercises in counseling and training presentations. Practical application of leadership development doctrine. Laboratory includes practical experience in unit administration and training management.

402   Military Law, Ethics and Professionalism
Spring. 3(3-2) RB: (MUS 401)
Introduction of the military legal system and the Law of War. The basis of the military profession and the importance of ethical development to the profession of arms. Development of subordinates. Laboratory includes practical exercises in professional development and leadership opportunities.

490   Independent Study in Military Science
Fall, Spring. 1 to 4 credits. A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to juniors or seniors. Approval of department. Individual research in areas related to military science.

MUSIC   MUS

School of Music
College of Arts and Letters

112   Chamber Music
Fall, Spring. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course. R: Open only to students in the School of Music. Audition required.
Rehearsal and performance of a broad range of chamber music literature.

113   Philharmonic Orchestra
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course. RB: High school and/or youth orchestra experience/or other college or university ensemble experience R: Audition required.
Rehearsal and performance of symphonic and operatic repertoire.

114   Marching Band
Fall. 1(0-3) A student may earn a maximum of 6 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of broad range of Marching Band literature at football games.

115   Spartan Brass
Spring. 1(0-2) A student may earn a maximum of 6 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of broad range of brass literature at basketball and hockey games.

116   Campus Band
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.
Rehearsal and performance of broad range of band literature chosen from baroque period to the present.

117   Concert Band
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of broad range of wind literature from various historical periods and styles.

118   Wind Symphony
Fall, Spring. 1(0-6) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of broad range of wind literature from various periods and styles.

119   Symphony Band
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of a broad range of wind and percussion literature.

120   Symphony Orchestra
Fall, Spring. 1(0-6) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of symphonic and operatic repertoire.

122   Campus Orchestra
Fall, Spring. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course.
Rehearsal and performance of symphonic and operatic repertoire.

123   Collegiate Choir
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.
Rehearsal and performance of representative literature for mixed choir with emphasis on vocal jazz and contemporary styles of choral music. No vocal jazz experience necessary.

124   Choral Union
Fall, Spring. 1(0-2) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
University and community chorus. One evening rehearsal per week, culminating in performance of a major work with orchestra.

125   Glee Club, Men and Women
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course.
Rehearsal and performance of broad range of choral literature chosen from medieval period to the present.

126   State Singers
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Mixed choir performing music from all periods.

127   University Chorale
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Mixed chamber choir for experienced singers performing representative literature from all periods.

129   Percussion Ensemble
Fall, Spring. 1(0-3) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance of representative works for percussion and mallet ensembles.

130   Jazz Band
Fall, Spring. 1(0-4) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance in large jazz ensemble. Literature from classic bands of Ellington and Basie to contemporary composers.

131   Jazz Combo
Fall, Spring. 1(1-2) A student may earn a maximum of 10 credits in all enrollments for this course. R: Audition required.
Rehearsal and performance in small jazz ensembles. Literature from all historical periods of jazz.

141   Class Instruction in Piano I
Fall, Spring. 1(1-1) R: Open only to students in the School of Music.
Use of the piano as a teaching tool.

142   Class Instruction in Piano II
Spring. 1(1-1) RB: (MUS 141) R: Open only to students in the School of Music.
Use of the piano as a teaching tool.

143   Class Instruction in Voice I: Music Majors
Fall. 1(1-1) R: Open only to students in the School of Music with an emphasis in voice. C: MUS 151 concurrently.
English lyric diction. Rules or pronunciation. Performance of English language songs in class.

144   Class Instruction in Voice II: Music Majors
Spring. 1(1-1) P:M: (MUS 143) R: Open only to students in the School of Music with an emphasis in voice. C: MUS 151 concurrently.

145   Class Instruction in Voice I
Fall. 1(1-1) R: Not open to students in the School of Music with an emphasis in voice. Rules of pronunciation. Vocal techniques.

146   Class Instruction in Voice II
Spring. 1(1-1) P:M: (MUS 145) R: Not open to students in the School of Music with an emphasis in voice.
Vocal techniques and exploration of vocal literature.

147   Class Instruction in Elementary Piano I
Fall, Spring. 2(2-1) R: Not open to students in the School of Music.
Basic notation, performance, improvisation, and transposition. Repertoire includes folksongs, simple classics, and blues.

149   Keyboard Skills
Fall, Spring. 1(0-2) A student may earn a maximum of 4 credits in all enrollments for this course. R: Open only to students in the School of Music.
Sight-reading, transposing, figured bass, keyboard harmony, and accompanying instrumentalists and vocalists.

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